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Gulf Stream Path Near 67 W and 58 W

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Estimates of Gulf Stream position and direction were computed at half-day intervals from adjacent Inverted Echo Sounder (IES) measurements (Teague and Hallock, 1989) as part of NORDA's Regional Energetics Experiment. These IES measurements were made from June 1985 to July 1986 with two arrays deployed near 67 W and 58 W, across the historical mean path of the Gulf Stream. Evolution of the Gulf Stream path estimated for each array is shown by video. Meander and eddy features are clearly visible at both locations.

Teague, W.J., and Z.R. Hallock (1989): Gulf Stream Path Analysis near the New England Seamounts, JGR, in press.

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Ocean Surface Currents in the Northeast Pacific Ocean--40 Years of Simulations With OSCURS Numerical Model

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An empirical model for numerical ocean surface current simulations (OSCURS) was developed to calculate Lagrangian trajectories of surface water movement in the northeast Pacific Ocean and Bering Sea north of 35°N. This hind cast model used the FNOC gridded sea level pressure fields to calculate wind, then computed current speeds from the Witting (1909) formula, 4.8 times the square root of the wind speed. The angle of deflection, which averages about 25° to the right of the wind, was calculated from the Weber (1983) formula. The long-term mean geostrophic current (0/3000 db) was vectorially added to the wind current in each of the model's daily time steps.

Calibration of the Gulf of Alaska portion of OSCURS was performed by multiplying current speeds by 1.2 to make the best-fit visual agreement between model trajectories and daily positions of satellite tracked drifters which circulated around the Gulf of Alaska from July to December 1978 (Reed, 1980).

The video presentation shows year to year variability in the Great Divergence by simulated drifter trajectories which were started at 155°W and moved eastward toward the U.S. and Canada coastlines. The strongest northward flows occurred in 1951, '58, '67, and '68; the strongest southward flows occurred in 1947, '48, '55, '60, and 1961.